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ABSTRACT

This study examined the influence of male and female models on the expectancies, achievement, and attributions of college students. A factorial design varied sex of subjects (male, female), sex of models (male, female), and causal attribution offered by models for completion of a novel task (effort, luck, ability, task difficulty). Females' expectancies for success were lower than males' expectancies. Overall, performances were not different between the sexes. However, a sex by model by attribution interaction showed that male and female performances were enhanced by different model-attibution combinations. Results were discussed in terms of attribution theory and social comparison processes. (Author)

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Modeling Influences on the Achievement of College Men and Women

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Modeling Influences on the Achievements of College Men and Women

Current statistics indicate that in the occupational and political spheres of our society, the achievements of men and women are unequal, with women typically underrepresented in higher status positions, and underpaid relative to men in comparable positions. There are two facets to the general problem of unequal achievement that are particularly relevant to the present research. First, the psychological literature abounds with studies indicating that men and women have differential expectancies regarding achievement related tasks. For example, Crandall (1969) has demonstrated that children and adult males consistently expect to perform better than females at a variety of intellectual tasks; Feldman-Summers and Kiesler (1974) were unable to identify even a single occupational category where college-aged judges expected women to be more competent than men; and House (1974) has shown that in competitive situations, women's performance expectancies are lower than men's even for tasks in which there are no reliable sex differences in actual performance. Thus, women and men show clear differences in their expectancies for success at achievement related tasks. Second, the causes of successful achievement are viewed differently for women and men. When males are successful at achievement related tasks, they tend to attribute their success to internal factors, particularly ability, whereas, when females are successful, they tend to attribute their outcomes to external factors such as task difficulty or luck (Deaux, 1976; Frieze, 1969; Frieze and Bar-Tal, 1974; Parsons, 1975). These attributional patterns result in women deriving less reinforcement from success than men, because women are less likely than men to accept personal responsibility for their successes.

Among the explanations that have been offered to account for the differences in achievements, expectancies and attributions of males and females, the importance of available role models has been suggested by a number of investigators (Douvan, 1974; Maccoby & Jacklin, 1974; Tangri, 1972; Tidball, 1973). A variety of studies indicate that children imitate the behavior of same sex models more than opposite sex models, suggesting that appropriate same sex models in achievement oriented situations could provide an important impetus to female achievement (Baruch, 1972; Hetherington & Frankie, 1967; Maccoby & Wilson, 1957). While parental models are clearly one important input in determining achievement behavior in women (Baruch, 1972; Tangri, 1972), models outside the home may be more important. For example, in elementary schools where the number of female instructors exceeds the number of male instructors, female students tend to excel over male students in academic performance. In secondary schools, where the number of female and male instructors is roughly equivalent, the academic performances of female and male students tend to even out. However, during the college years when the educational environment becomes predominantly male (U.S. Bureau of the Census, 1975) the academic achievements of male students seem to accelerate while the achievements of female students decline (Bardwick, 1971). Thus, as students progress through the school environment, there seems to be a correspondence between the proportion of female to male instructors and the academic achievements of female and male students.

Tidball (1973) obtained strong correlational evidence suggesting the importance of female college instructors as models fostering achievement among women students. Examining the undergraduate educational institutions of 1100

career successful women who had earned college degrees between 1910 and 1960, she found a +.95 correlation, $p < .005$, between the number of women faculty available and the number of forthcoming women achievers. There is virtually no experimental research directly examining the effects of modeling on the expectancies and achievements of college men and women, but the available correlational data are highly suggestive.

The present study was designed to examine the influence of successful male and female models on the expectancies, performances, and attributions of college men and women. First, we hypothesized that same sex models would be more influential in promoting achievement than opposite sex models, basing this prediction on previous empirical findings, and on the social comparison prediction (Festinger, 1954) that people prefer to compare themselves to and emulate similar others rather than dissimilar others. In the realm of achievement, sex has been shown to be a salient dimension of similarity/dissimilarity (Zanna, Goethals & Hill, 1975). Second, we wanted to explore the possible impact that models' causal explanations for success might have on achievement behavior. We hypothesized a possible interaction among sex of subjects, sex of models, and models' attributions for successful task outcomes.

A 2x2x4 independent groups factorial design tested the hypotheses by varying sex of subjects (male, female), sex of models (male, female), and causal explanations offered by the models to account for their successful completion of a novel task (effort, luck, ability, task difficulty). Male and female college age subjects were exposed to videotapes of either three male or three female college students successfully completing a relatively difficult puzzle task. Upon completion of the task, the three models all agreed that

their successful performance was largely due to effort, luck, ability, or task difficulty. Subjects were then asked to indicate their own expected performances on the puzzle, were given an opportunity to work on the puzzle, and were asked to account for the causes of their own performance in terms of effort, luck, ability, or task difficulty. Control subjects responded without seeing videotaped models. We predicted that same sex models would promote higher expectancies and facilitate better performances than opposite sexed models, and we further anticipated that subjects might adopt the particular causal explanation provided by the models (effort, luck, ability, or task difficulty) in accounting for their own performances.

Method

Subjects

One hundred female and 100 male volunteers were recruited from Skidmore College to participate in the research. Ten males and ten females were randomly assigned to each of the experimental conditions, and 20 males and 20 females were randomly assigned to the control condition.

Materials and Procedure

Thirty-two piece egg-shaped puzzles were employed as the novel task. Eight videotapes were filmed to create the experimental manipulations, half with three male peer models and half with three female peer models. Models were verbally instructed by a same sexed narrator in the successful completion of the task. Verbal protocols were identical for male and female tapes, and all tapes lasted 15 minutes. Four endings to the videotapes were devised for the male and female tapes, in which the models were asked by the narrator to

account for their successes at the task. According to condition, all models agreed after reflection that the outcome was due primarily to effort, luck, ability, or task difficulty. The various endings were appropriately spliced with the modeled task performances to create the eight treatment conditions.

Dependent measures. All subjects estimated their own performance after viewing the tape. They then worked at the puzzle for 15 minutes, and the number of pieces properly assembled served as the measure of actual performance. Subjects were asked to account for their own performance in terms of effort, luck, ability or task difficulty. Manipulation checks assessed subjects' perceptions of the models' attributions.

Results

In the absence of any models (control condition), there were no significant differences in expectancies or actual performances between males and females. In other words, the relatively novel task we used in this study was not initially biased in favor of one or the other sex. All experimental subjects' expectancies were elevated and performances were enhanced significantly by the opportunity to observe successful models (see Table 1). However, in the

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Insert Table 1 about here

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experimental groups a main effect for Sex indicated higher expectancies among males, $\underline{M} = 26.94$, than females, $\underline{M} = 24.23$, $\underline{F}(1,144) = 6.71$, $p < .01$. Expectancies were not affected by a Sex of subject x Model interaction such as had been anticipated, nor were there any other significant main effects or interactions.

The independent variables exerted powerful effects on the actual task

performances of subjects (Table 1). A significant main effect for Model showed that, overall, subjects performed better after observing female models, $\underline{M}$ = 21.13, than male models, $\underline{M}$ = 17.73, $\underline{F}(1,144) = 6.45$, $p<.01$. However, a Sex by Model interaction, $\underline{F}(1,144) = 3.15$, $p<.07$, indicated that males performed substantially better after viewing female models, $\underline{M}$ = 22.75, than after viewing male models, $\underline{M}$ = 16.98, Tukey (a), $p<.05$, whereas, females performed similarly whether watching females, $\underline{M}$ = 19.50, or males, $\underline{M}$ = 18.48. This finding was qualified by a significant three way interaction among Sex, Model, and Attribution, $\underline{F}(3,144) = 2.86$, $p<.05$. Specifically, male subjects generated significantly better performances after observing female models who attributed success to the internal factors of effort, or ability, Tukey (a), $p<.05$, for all comparisons. Females generated significantly better performances when observing either female models who attributed their success to the (ease of the) task, or male models who attributed their success to ability, Tukey (a), $p<.05$, for all comparisons.

Manipulation checks revealed that subjects accurately perceived the causes offered by the models to account for their success, however. subjects' own attributions were not affected by sex, model, or attribution manipulations.

Discussion

The similarity between male and female expectancies among control subjects contrasts significantly with the differing expectancies between males and females in the experimental groups. For experimental subjects, the opportunity to observe three models simultaneously working at the task, probably heightened the sense of competitiveness associated with performing the task. House (1974) previously found no differences in expectancies of men and women working alone,

however, he found diminished expectancies in women relative to men, when the subjects worked in the presence of others. The expectancy results obtained in this study appear to be in line with House's findings, and they suggest that the experimental conditions produced differential expectations between males and females because a sense of competition was aroused and the possibility of performance comparisons was made salient.

The tendency of males to perform better after watching female models than male models seems to directly contradict the first hypothesis of this study that people will tend to emulate same sex rather than opposite sex models. This unexpected result can perhaps best be accounted for by focusing on the significant interactive effects of Sex, Models and models' attributions on actual performances. Recall the general tendency in our society, to attribute successful outcomes of males to internal factors such as ability, and to attribute successful outcomes of females to external factors such as task ease (Deaux, 1976; Frieze, 1969; Frieze & Bar-Tal, 1974). When males observed successful females atypically attributing their outcomes to internal factors of effort or ability, they demonstrated higher levels of performance than under other model-attribution combinations. The fact that females were successful and attributed that success to internal factors, seemed to result in a performance-facilitating "I can do anything she can do better" attitude among males. Males, expecting to perform better than females, seemed particularly eager to make social comparisons with females who displayed "male like" attributional patterns, but they apparently worked hard in order that those comparisons not be embarrassing to their expectations. Females, although expecting to perform less well than males after observing

the models, nevertheless performed at high levels after viewing models who offered traditional causal explanations for their success (males succeeding because of internal ability, females succeeding because of external task ease). Festinger (1954) has argued that when people evaluate their abilities in the absence of objective criteria, they will prefer comparisons with similar others over comparisons with dissimilar others. Female models who attributed success to the ease of the task may have appeared most "similar" to female subjects, whereas male models who attributed success to ability may have appeared most "dissimilar" to female subjects. Viewed in this way, female subjects in our experiment appear to have performed best when provided with highly similar female models, or highly dissimilar male models. In the former case, comparison would be maximized and high levels of performance would be encouraged by the models' similarity, whereas, in the latter case, the importance of comparison would be minimized and the evaluative pressures of "competition" would be diminished by the models' dissimilarity.

The finding that subjects' self attributions were unaffected by the models causal explanations suggests that observational learning is not sufficient to alter the differing attributional patterns of men and women documented in the literature. However, it is possible that if subjects' actual performances had been universally perfect and therefore equivalent to the models' performances, subjects' attributions for their outcomes might have been more susceptible to modeling influences. The generalizability of the present results is also limited by the fact that the models employed in this study were clearly peers rather than models of high status or expertise. Models with high expertise might discourage the arousal of competition such as seemed to occur in male subjects observing female models, and thus might produce results more in line with the original predictions.

Overall, the primary importance of the present data rests in demonstrating that achievement behavior in college women and men is susceptible to modeling influences. Sex similarity and casual attributions of the models are important determinants of those influences. Future research might be directed toward investigating the influences of "expert" models, and toward clarifying the role of models' causal attributions in mediating achievement performance.

Table 1

Mean Expectancies and Task Performances of Male and Female Subjects, Presented by Condition (N= 10 per cell)

Model	Attribution		Dependent Measures			
			Expectancy		Performance	
			Males	Females	Males	Females
Male	Effort	M	23.50	19.60	16.20	15.50
		Sd	10.08	9.28	7.21	9.03
	Ability	M	26.60	27.40	19.30	23.00
		Sd	7.43	5.50	9.63	7.51
	Luck	M	29.60	27.20	15.10	17.20
		Sd	5.40	4.83	8.54	8.55
	Task Difficulty	M	29.50	23.00	17.30	18.20
		Sd	4.43	7.50	7.66	8.39
Female	Effort	M	27.60	22.60	27.10	20.70
		Sd	6.65	5.82	6.33	8.01
	Ability	M	26.60	24.40	26.00	16.20
		Sd	7.66	5.40	6.85	8.18
	Luck	M	27.50	23.00	22.20	16.60
		Sd	6.11	2.71	10.36	11.20
	Task Difficulty	M	24.80	26.60	15.70	24.50
		Sd	5.90	7.43	7.57	8.93
No Models		M	16.95	16.00	8.45	8.25
		Sd	6.77	4.65	6.28	6.02

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